

1916

NATURE'S OWN FOR PERMANENT SOIL FERTILITY NATURE'S OWN



**FINELY GROUND HIGH GRADE
PHOSPHATE**

**LAKELAND PHOSPHATE COMPANY
LAKELAND — FLORIDA**

TO THE GROWER WHO WANTS TO GROW

Of the three elements necessary to healthy plant growth and profitable crop production, phosphorus is one of the most difficult to obtain. Compared to the other two elements, nitrogen and potash, the supply of phosphorus is decidedly limited. Nitrogen may be supplied by leguminous plants. Potash comes in organic forms as well as in salts. Phosphorus cannot be produced by any known system of cropping or cultivation and yet without phosphorus there can be no vigorous vegetation.

The practical farmer and fruit grower knows that each bushel of corn, each box of fruit and each crate of vegetables raised on his place takes a certain amount of phosphorus out of the ground, and that some method must be found to put this phosphorus back again. The simplest, most sensible and most economical form in which this necessary phosphorus may be returned to the soil is a pulverized high-grade phosphate, such as NATURSOWN.

Finely ground natural phosphate is the closest possible approach to nature's own method of restoring phosphorus to the soil. The practical value of this soil enricher has been known to planters and scientists for years. Our special process for pulverizing our high-grade

phosphate has made NATURSOWN the most efficient, economical and popular form of phosphorus obtainable.

It has long since been successfully demonstrated that the best means of restoring and the most lasting method of maintaining fertility is to feed the soil with a manure, leguminous crops and finely ground natural phosphate, such as NATURSOWN.

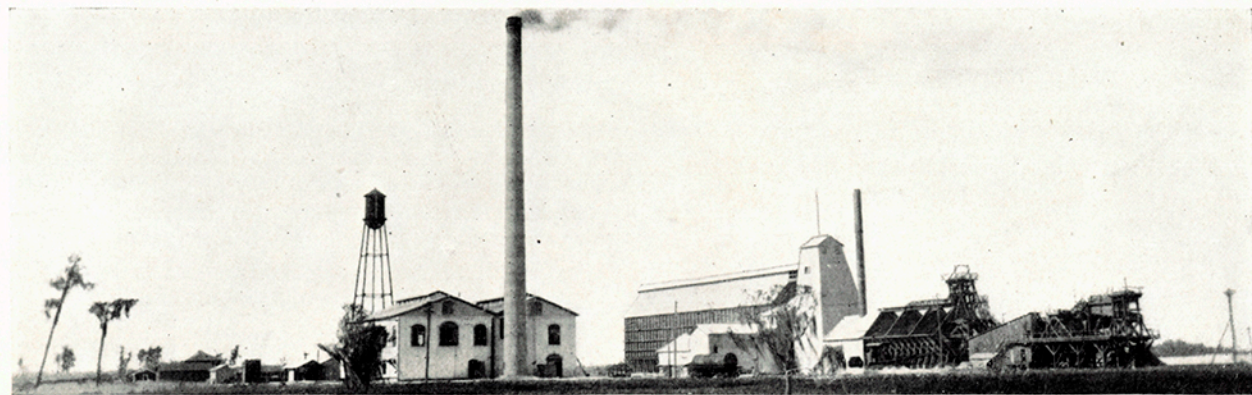
Your careful attention is therefore called to what we say about NATURSOWN in the following pages. Our own claims are much more modest than are the declarations in favor of ground natural phosphate by successful growers and by agricultural experts.

The Lakeland Phosphate Company has a half million dollars of Florida money invested in its phosphate mines and machinery. C. W. Deen, former president of the First National Bank of Lakeland, is president of the company; W. D. McRae, a well-known Lakeland contractor and builder, is secretary and treasurer; H. E. Memminger, prominently identified for eighteen years with the phosphate mining business, builder and operator of four phosphate plants, is vice-president and general manager. NATURSOWN is our brand for the best in quality and fineness that phosphate mines and mills can produce.

NATURSOWN

THE FINELY GROUND HIGH-GRADE PHOSPHATE
FOR HEAVY CROPS & PERMANENT SOIL FERTILITY

THE LAKELAND PHOSPHATE COMPANY LAKELAND, FLORIDA





Plant of The Lakeland Phosphate Company where "Naturesown" is made

Use Natursown as a Measure of Economy

The profitable results from the use of NATURSOWN prove that here is a fertilizer of superior effectiveness, showing unusual power to promote plant growth, and yet producing these results in the most economical manner. The low cost of fertilizing with NATURSOWN has created a demand that is rapidly increasing, showing that our patrons appreciate this feature.

They, the men who use NATURSOWN, progressive, wide-awake farmers, back up our claim that it is the most economical and the most effective permanent soil enricher on the fertilizer market. Their endorsements of NATURSOWN are entirely voluntary, and they write for your benefit.

We will show you later on how \$20 invested in NATURSOWN fertilizer, used in accordance with the methods we recommend, will be equal in crop yield and soil improvement to \$60 invested in the usual form of soil fertilization. This has been proved by the people who have followed our advice, and by the scientists who have produced results by methods we advocate.

THE IMPORTANCE OF PHOSPHORUS

Phosphorus is described as "the master key of permanent agriculture," by Dr. Cyril G. Hopkins, who voices the opinions of a small

army of experts, and says: "The greatest economic loss that America has ever sustained has been the loss of energy and profit in farming with an inadequate supply of phosphorus. Phosphorus is a Greek word which signifies 'light bringers,' but it is a light which few Americans have yet seen. Else we would not permit the annual exportation of more than a million tons of our best phosphate rock, for which we receive at the mines a paltry sum of five million dollars, carrying away from the United States an amount of the one element of plant food we shall always need to buy, which if retained in this country and applied to our soils would be worth not five million, but a thousand million dollars, for the production of food for the coming generations."

Speaking of the source of phosphorus, Dr. Hopkins remarks: "There are many kinds of fertilizing materials that contain phosphorus—one may cost ten times as much as another so far as the phosphorus is concerned. One ton of finely ground natural phosphate rock contains 250 pounds of phosphorus, delivered for something like \$8 to \$10 a ton. Or, the ton of raw phosphate may be mixed with a ton of sulphuric acid in the fertilizer factory, and the two tons of acid phosphate may be sold to the same farmer for \$32. Or, the fertilizer

manufacturer may mix the two tons of acid phosphate with two tons of filler, containing a little nitrogen and potassium, and then sell the same four tons of so-called 'complete' fertilizer for \$80 and the farmer gets no more phosphorus in the four tons of 'complete' fertilizer than in the one ton of natural phosphate for \$8."

The above paragraph is worth a second reading. There is a great truth there—worth learning by heart. The correctness of Dr. Hopkins' figures must be conceded, and in them there is found a powerful argument for NATURSOWN. One ton of NATURSOWN equal to four tons of complete fertilizer. And memorize that difference in cost. It pays to know such things.

NATURSOWN, A NATURAL FERTILIZER

In naturally rich soil there is an abundance of phosphorus. This is one reason for the enormous yields of the famous northern corn belt. There is little phosphorus in southern soils, but finely ground phosphate supplies this deficiency, and NATURSOWN, because of its high grade and the complete pulverizing, supplies phosphorus in the one way that closely reproduces conditions found in virgin soil.

It is not claimed for NATURSOWN that it is soluble in water. This is not a necessary characteristic for this form of fertilizer. But it is claimed, and most emphatically, that when

NATURSOWN is applied in proper quantity, and thoroughly mixed with the soil, the phosphoric acid becomes quickly available by natural methods, and is used by the crops according to their needs.

Moreover, NATURSOWN, being a phosphate in natural form, and remaining inert until acted upon by the organic matter and bacteria in the soil waters, may be applied at any time and in any quantity for the benefit of growing crops or for the enrichment of the soil. That portion of NATURSOWN not required for immediate plant growth remains in the soil—its value unimpaired—until the crops call for it and take it up.

The fertilizing value of ground phosphate has been endorsed so strongly by scientists and large users of fertilizers that thousands of growers have turned to it to solve their fertilizer problems. But it was not until the process for completely pulverizing phosphate rock was perfected that ground phosphate really came into its own as a fertilizer for quick results as well as a soil builder.

Our equipment for grinding NATURSOWN has no equal. Every ton of phosphate we mine is sampled and analyzed twice before it goes into the storage bins for grinding. Each day's run from our grinding mill is sampled and analyzed. After that we guarantee NATURSOWN as to quality and fineness.

PHOSPHORIC CONTENT OF NATURSOWN

Analysis of phosphate rock from our mines gives the following results:

Total Phosphoric acid.....	34.42%
(Equivalent bone phosphate lime 75.20)	
(Ca.O) combined with B. P. L.....	43.07%
Calcium carbonate.....	6.20%
Insoluble silicious matter.....	6.50%
Iron and Alumina oxide.....	2.60%
Moisture.....	1.65%
Magnesia, soda, etc.....	5.56%
Total.....	100.00%
Phosphoric acid soluble in neutral citrate solution	1.42%

It is from this rock that NATURSOWN is prepared. Farmers, truckers and fruit growers using NATURSOWN get a high-grade phosphate, ground to a powder. In this condition NATURSOWN carries back to the soil a high percentage of phosphorus available for the growing crops and providing a large quantity of proper food for the crops to come.

HERE ARE OUR GUARANTEES

We prepare NATURSOWN from what is known as 72% phosphate, which is an extremely high grade product. *We absolutely guarantee that NATURSOWN contains not less than 32% of Phosphoric Acid.* In order to make good on this guaranty we must grind a quality of phosphate which will allow us ample margin to cover this guaranteed percentage—

usually the purchaser finds that NATURSOWN shows 33 to 34% of Phosphoric Acid.

Our guaranty as to grinding is that when NATURSOWN is ready for sale, practically all of the product will pass through a screen containing 10,000 openings to the square inch, and that nearly 70% of it will pass through a screen having 40,000 openings to the square inch. In other words, it has practically the fineness of bolted flour, and presents millions of minute surfaces for the action of the soil bacteria, which makes it soluble and available as plant food.

UNTREATED ROCK IS BEST

In making this statement we speak advisedly. As is true of every claim advanced for NATURSOWN we have secured evidence that cannot be disputed and we submit here testimony that is most convincing.

The 1916 Year Book of Commercial Fertilizer contains an article by James Hamilton Byrd, on "Phosphate the Paramount Fertilizer," from which the following extracts are reproduced: "The value of phosphate rock as a fertilizer is only just beginning to be recognized. As little is known by the great majority of farmers on the subject of fertilizers as any vital problem which confronts them. Many a one has applied year after year expensive nitrogen and potash to land which required only phosphate.



DeSoto Hotel Farm near Tampa. Crops grown with "Naturesown"

"The idea of the need of all lands for an expensive 'complete' fertilizer has been well fostered by the fertilizer manufacturers. The writer was brought up on a farm, and was taught and read the requirement of all soils for a fertilizer containing all three of the plant foods—nitrogen, potash and phosphorus.

"The Ohio Agricultural Experiment Station, in a long series of experiments with crops of corn, oats, wheat, clover and timothy, has shown that every \$1 invested in phosphorus paid back \$4.76, while neither nitrogen or potash paid back their cost. The same station has found as the average of 56 tests in eleven years work that when rock phosphate was applied in connection with manure, every \$1 invested in phosphate rock paid back \$5.68.

"Other interesting experiments have shown that raw phosphate rock, ground very fine, and applied directly to the land *without chemical treatment*, is in most cases far more beneficial than acid phosphate or phosphate rock dissolved with sulphuric acid.

"As a permanent improver of all soil, the untreated rock has much greater efficiency. In dozens of State and Federal experiments the great increase in crop yields on certain soils through the use of phosphate has been clearly proven."

NOW AS TO COMPARATIVE COSTS

Comparison as to costs of and returns from

the use of NATURSOWN and the use of other fertilizers and methods will throw light on the economy effected in using NATURSOWN.

The citrus fruit grower, for instance, who gives his groves reasonable attention will, as a rule, apply in the course of a year not less than two thousand pounds of some standard formula of commercial fertilizer. For this he must pay anywhere from \$35 to \$72 per ton, according to market conditions.

In this ton of "commercial," if he used a formula containing 8% phosphoric acid, the total quantity of phosphoric acid he has purchased will not exceed 160 pounds. At the present market price of superphosphates this 160 pounds has cost him from \$9 to \$10. One hundred and sixty pounds of phosphoric acid spread over one acre is barely enough to sustain the immediate growth of the trees. Other applications will be needed annually.

An application of one ton to the acre of NATURSOWN finely ground phosphate, guaranteed to contain 32% of phosphoric acid, supplies 640 pounds of phosphoric acid, or four times the quantity purchased in a ton of commercial fertilizer, and the cost price of this 640 pounds of phosphoric acid does not exceed the cost of the 160 pounds.

\$20 PER ACRE VERSUS \$60

For still another illustration of the difference in the cost of using NATURSOWN fertilizer

and nature's own methods, and using some other kind, consider the cases of Farmer Jones and Farmer Smith, who are practicing intensive cropping in Florida.

Farmer Jones puts a ton of NATURSOWN on each acre of his land each year. He also keeps stock and saves the manure from them and plows this manure in with velvet beans, peas or other good leguminous cover crops. This system costs him for NATURSOWN, manure, seed and labor, not over \$20 per acre per year. It gives him good crops and is constantly improving his land.

Farmer Smith uses "commercial" fertilizer. He depends upon it to make his crops and to "hold up" his land. More "commercial" is required each year because he is doing nothing for permanent fertility. In the course of a few years he is spending \$60 per acre per year to simply maintain his standard of yield.

Farmer Jones has a better farm and better crops during and at the end of ten years than has Farmer Smith. Jones' land has been built up. Smith's land has been "held up"—and robbed. Jones has spent \$20 where Smith has spent \$60.

SCIENTIFIC TESTS

We have mentioned experiments, results and recommendations based upon the use of ground rock phosphate, but have hesitated to make any specific statements on our own behalf. But there are others who can testify for us.

MARYLAND SPEAKS FOR RAW PHOSPHATE

In 1895 the Maryland Experiment Station began field experiments with different forms of phosphorus; and, as an average of six tests every year for twelve years, \$1.96½ invested in ground raw rock phosphate produced increases in corn, wheat and hay that were worth \$22.11, at 35 cents a bushel for corn, 70 cents a bushel for wheat, \$6 per ton for hay and 3 cents a

pound for phosphorus, in the ground natural phosphate.

In commenting on this investigation, the directors of the Maryland Agricultural Experiment Station state that the raw phosphate produced higher total average yields than acid phosphate, and at less than half the cost.

In its bulletins on "Fertilizer Experiments with Different Sources of Phosphate Acid," the Maryland Station says: "Results show that as far as the corn crop is concerned, insoluble phosphates are just as valuable as soluble phosphates, and that phosphate rock is just as valuable as bone meal.

"The results show decidedly that plants are

able to utilize insoluble rock phosphates. Insoluble phosphates produce a slightly higher average yield than soluble phosphates at about one-half the cost."

IMPROVES RICH ILLINOIS LAND

The methods followed by users of NATURAL OWN have met with great success in Illinois. In a bulletin issued by the University of Illinois Agricultural Experiment Station on the subject of phosphorus and humus in relation to Illinois soils, statements are made which are of special interest to Southern growers because Southern soils have much less phosphorus than those of Illinois.

The bulletin says: "The most practical and economical method of maintaining the supply of phosphorus in the soil is by the application of one thousand pounds to the acre of finely ground natural rock phosphate once every four to six years in connection with liberal supplies of decaying organic matter as farm manures, legume crops, or other manures.

"In order to increase the total phosphorus content of the soil so as to have a larger working capital than the present stock, it is advisable that once during the rotation one ton or more per acre shall be applied for the first three or four crop rotations, thus increasing the supply within a few years from 1,200 pounds, the present average, to about 2,000 pounds of phosphorus per acre, after which

the smaller application of one-half ton of rock phosphate per acre once every five or six years, will at least permanently maintain or continue slightly to increase the supply of phosphorus in the soil."

MAINE KNOWS ABOUT RAW PHOSPHATE

In a series of experiments with phosphate at the Maine Station, the data shows that during the first two years after application, the acid phosphate gave about the same results as raw phosphate, but afterward the raw phosphate gave distinctly better results than the acid phosphate.

SO DOES RHODE ISLAND

The Rhode Island Experiment Station began a series of experiments with different forms of phosphorus in 1894. If we add together all the hay and grain crops grown during the decade following the first year of these experiments, we find that the increases per acre were 14,580 pounds for raw phosphate, and 14,550 pounds for acid phosphate, on unlimed lands; while the lime and acid phosphate produced 29,690 pounds increase, and the acid phosphate cost three times as much as the raw phosphate.

IT PAYS IN PENNSYLVANIA

In a book written by Dr. Hopkins on "The Farm That Won't Wear Out," some interesting experiments by practical men of Pennsylvania are referred to as follows:



Celery Field, Manatee County. Grown with "Naturesown"

"The Pennsylvania State College conducted an experiment for twelve years, 1884 to 1895, in which \$1.05 an acre was invested in ground raw phosphate with rotation of corn, oats, wheat and hay (clover and timothy), and the value of the increase produced by the phosphorus amounted to \$5.85 as an average for twelve years, and to \$8.41 as an average for the last four years. Thus the profit was from about 560 to 800 per cent on the investment, counting corn at 35 cents a bushel, oats at 30 cents, wheat at 70 cents and hay at \$6 a ton."

FROM ACROSS THE OCEAN

Sir J. B. Lawes, founder of the Lawes Agricultural Trust, England, says that after forty years of experiment, he has nothing conclusive to bring forward in regard to the superiority of the soluble over insoluble phosphates, and concludes: "Why, then, do farmers use superphosphates instead of the finely ground raw phosphate, when the raw phosphate costs less than half that of the superphosphates with double the quantity applied, producing equal results the first year and one-half the raw phosphate applied reserved in the soil for future crops?"

WHAT PRACTICAL FARMERS SAY

W. B. Doax, of Fairfax County, Virginia, in Southern Farming says: "Several years ago we had 22½ tons of raw phosphate shipped

here. Have been using it ever since. It makes the decidedly best absorbent one can use with no resultant loss of ammonia. It is dry and fine, and can be handled without danger or difficulty. Sprinkle about twenty pounds over the manure for about every 10 head of live stock. I have an abiding faith in phosphate rock. If one will work it well into the soil, like casting bread upon the waters, it will return."

ALABAMA IS IN LINE

T. J. Larkin, of Talledaga County, Alabama, in an article in Southern Farming, writes: "I am a firm believer in rock phosphate, and am just about to order another car to put on an additional 25 acres of alfalfa I will plant this fall. I have used it frequently and have seen it applied by others with excellent results.

"Certainly, phosphate rock is the cheapest phosphate to buy, and as to its availability in our red clay (for we must buy phosphate) I have not a doubt. Following peas and turned under with stubble at fall plowing, there is little to beat it."

FROM THE COUNTRY GENTLEMAN

R. J. Holliday, a Pennsylvania farmer, says in this valuable publication: "Each spring the hay fields are treated to 75 pounds of nitrate of soda to the acre, spread by hand, and 600 pounds of ground raw phosphate rock applied with a lime spreader. When this treatment is

given, I can usually depend upon at least fifty per cent increase in the amount of hay over a crop on untreated land, and the results are even more noticeable in the succeeding corn crop."

The Country Gentleman again says: "Out in the corn belt the agricultural leaders insist that the farmer gets most of his phosphoric acid from ground phosphate rock or floats. Used with stable manure or green manure crops this material gives up its plant food so quickly that it is much the cheapest source of phosphoric acid."

GOOD FOR CITRUS TREES

Robert Stewart, in an article on "Feeding the Citrus Grove," in The Country Gentleman, says: "The deficiency in phosphorus should be made up by adding phosphorus in the form of raw rock phosphate or raw bone. There are many other forms of phosphate, such as acid phosphate, superphosphates, and acid bone, but the phosphorus in such form is more expensive and not more effective, provided the grower makes provision for the liberation of the phosphate in the raw rock. This he can readily do by the addition of organic matter, by growing and plowing under green manures, which decompose and produce organic acids which liberate the phosphorus and other plant foods from their compounds in the soil.

PROFITABLE AT HALF THE COST

Prof. W. F. Massey, in an article on "\$500 More a Year for the Average Southern Farmer," in the August 5, 1916, issue of The Progressive Farmer, says: "With an abundance of vegetable matter decaying in the soil, we can use profitably the raw phosphate rock at less than half the cost of acid phosphate. When this organic matter, whether clover or peas, is buried in the soil, the different forms of bacteria get busy. One form breaks down the organic matter and releases ammonia. Another form feeds on ammonia and makes nitrous acid. A third form converts this into nitric acid and this not only combines with any base in the soil and forms nitrate, but it makes the phosphoric acid in the rock soluble and available to plants."

GOOD FOR FLORIDA GROVES

Dr. W. H. Connibear, owner of Magnolia Farm, near Lakeland, is a disciple of Dr. Hopkins. On his Illinois farm he used raw phosphate with great success. He has also used finely ground phosphate on his Florida farm, regarding which he writes to the Lakeland Phosphate Company as follows:

"On taking possession of my grove in August, 1912, I found a part of it that looked so much poorer than the remainder, that I

decided to make a trial of raw phosphates upon it as we had done in Illinois. The results can be seen by anyone who comes, and many have come, all of whom have pronounced the appearance of the trees and the quantity and

quality of the fruit to be superior to the other. These results have led me to decide to use no more complete fertilizer on the remainder of my grove in the future, and I do not hesitate to advise my neighbors to do likewise."

THE PROPER USE OF NATURSOWN

We do not claim that NATURSOWN is a complete fertilizer, but we do claim—with emphasis—that in soils reasonably well supplied with humus, NATURSOWN has no superior as a phosphate fertilizer for immediate as well as succeeding crops and as an

economical medium for increasing crop yields.

In any soil where humus is present or where humus is supplied, or in any soil mixed with stable manure, or in any soil where leguminous crops have been turned under, NATURSOWN will return many times its cost.

WHEN TO APPLY NATURSOWN

NATURSOWN when broadcasted can be applied at any time. As a rule, it is best to apply NATURSOWN ahead of turning in the

cover crop, or when breaking the land in the fall or spring. When used in smaller quantities apply a few weeks in advance of planting.

HOW TO APPLY NATURSOWN

In the directions which follow we have outlined general principles for applying NATURSOWN to the soil for the benefit of various forms of tree and plant life. Conditions and soils vary to such an extent that no fixed rules can be made, but the directions given here may with confidence be used in the majority of cases. Bear in mind that

NATURSOWN, in addition to being a phosphorus carrier for immediate benefit, must also be recognized as a permanent soil builder. In all cases small applications can be used to advantage, but a larger use and heavy distribution will secure the desired results with less frequent applications. Whether broadcasted or used in the furrow, mix well with the soil.



Corn Field, Hillsboro County. Grown with "Naturesown."

FOR GENERAL FARM CROPS

For general farming it is best to make one heavy application of one or more tons of NATURSOWN broadcast and turned in. Then every year apply from one-half to one ton to the acre. This system will provide an abundance of phosphorus to the soil from the first. The succeeding applications will return to the soil that which is removed by the crops, and constantly increase the phosphorus in the land. An approved crop rotation should be followed, with leguminous crops grown at intervals to supply nitrogen and, if turned under, organic matter for humus. For the nitrogen values of leguminous crops refer to table under head of citrus groves. If manure is to be had, it should be applied liberally to the field. This system will produce superior crops at a minimum cost for fertilization, and will build up and increase the value of the land. Light annual applications of from 500 to 1,000 pounds of NATURSOWN may be used with just as satisfactory results by confining it to the root area of the plants.

FOR HAY CROPS

(NATAL, RHODES, TIMOTHY, ALFALFA, ETC.)

It is a mistaken idea to suppose that grasses can be grown on the average land and cut from year to year for making hay, without returning to the soil the fertilizing elements that have been removed. For these forage crops

NATURSOWN should be applied about as directed for the general farm crops. It is preferable to broadcast in fields that will not be plowed or disced when rains may be expected.

We call especial attention to the value of NATURSOWN for the growing of alfalfa. One of the most successful growers of alfalfa in the South states that he attributes his success largely to the use of pulverized phosphate instead of the acid treated rock.

FOR SUGAR CANE

Cane, as a rule, is planted in soils rich in humus. In Louisiana it is customary to rotate this crop with corn and cowpeas. Cane is grown for two years and corn the third year, with cowpeas, the peas being turned under. A heavy application of NATURSOWN every three or four years will supply the cane with all the phosphoric acid required. Cane demands a considerable quantity of nitrates. With the exception of soils well supplied with this ingredient, it is well to use a carrier in the form of cottonseed meal at the rate of 200 pounds to the acre. Great benefit is often derived after the plants have started from a light application of nitrate of soda.

FOR CITRUS GROVES AND FRUIT ORCHARDS

The fertilization of citrus groves and fruit orchards depends upon the character of the soil and the size of the trees. From the time



This division of Dr. Connibear's Grove has had Ground Phosphate for four years



Another section of same Grove has not done so well with commercial fertilizer

the young tree is planted the system of fertilization should be soil building. When the tree is set, eight or ten pounds of NATURSOWN should be mixed with the soil before filling the hole. This will aid root development and give the young tree all the phosphoric acid necessary for a good start. For future applications, use from twenty to forty pounds to the tree, depending upon the size, distributed in a circle just outside the spread of the branches. It is preferable to apply not less than one ton to the acre every year over the entire grove.

As the young trees need nitrogen for quick growth in soils deficient in this element, it is necessary to use a nitrogen carrier. However, we strongly advise omission of artificial means in favor of a good stand of legume, to be turned under each season. By this method the soil will sustain trees when they have reached maturity and very little fertilization will be required to keep them in condition. The same system should be followed in the old established groves and in a few years the expense of fertilization will be reduced to a minimum.

The following table shows the composition of cowpeas, soy and velvet beans and stubble combined, and also indicates the added fertility to the soil when plowed under:

	Nitrogen	Potassium
Cowpeas -----	69.5 lbs per acre	41.2 lbs per acre
Soy beans-----	146.2 lbs per acre	47.8 lbs per acre
Velvet beans ----	141.2 lbs per acre	Not determined

At the present market prices for nitrates, the nitrogen obtained by plowing under a crop of cowpeas is worth approximately \$16.10, and potassium about \$18.00, or a total of \$34.10 per acre without considering the value of the humus supplied to the soil.

Soy beans plowed in at the present market prices are worth in nitrogen approximately \$33.63 and in potassium about \$21.51, or a total of \$55.14 per acre in increased fertility, due to the plowing under of a crop of these beans, to say nothing of the value of the humus added to the land. Velvet beans have approximately the same fertilizing value as soy beans.

FOR GOLF COURSES, LAWNS AND GARDENS

The requisite of a good lawn is a soil full of humus. If the soil is of a light sandy character a heavy dressing of well-rotted stable manure should be applied. When manure is well rotted you avoid the possibility of weed or grain seed germinating. A heavy application of NATURSOWN should be broadcasted. Do not be afraid of overdoing it; grass requires plenty of phosphorus and in this form a heavy application provides it for years. Work the manure and NATURSOWN thoroughly into the



Celery Field, Hillsboro County. Grown with "Naturesown."

soil. The grass seed can then be planted after the soil has settled, or the grass sod set out, whichever method is followed. For old lawns, broadcast NATURSOWN generously over the grass and then wash it in thoroughly with hose or sprinkler.

FOR VEGETABLE CROPS

The first essential for successful vegetable growing is to have a well drained soil, rich in organic matter. Some of the best truck lands in Florida are drained muck which are naturally well supplied with humus. However, most of these muck lands are at first very acid. This acidity can be corrected by applying ground limestone, if the crop is one which will not grow on acid soil. Paradoxical as it may seem, these muck lands often require a light application of manure to start the growth of bacteria.

Nearly all vegetables require large quantities of phosphoric acid in which truck lands are generally deficient. Where truck is to be grown, an application of not less than two tons of NATURSOWN to the acre should be broadcast and turned in when the cover crop is plowed under in the fall or spring.

COMPOST AND NATURSOWN

Creation of a compost heap from leaves, straw, muck and manure to be used in connec-

The following table from page 24 of circular 182 of the Illinois Experiment Station shows the average annual results from supplementing manure with rock phosphate, as compared with other treatment on tomatoes.

TOMATOES

Treatment: Acre basis	Lbs. of Market- able fruit per plant	No. of Crates per acre increase over check	Net Profit per acre over check
Check -----	2.68		
Manure, 10 tons -----	3.16	58	10.79
Manure and 545 lbs. bone meal -----	3.52	94	12.69
Manure and 545 lbs. rock phosphate -----	3.72	122	13.55

Crops that demand forcing, such as lettuce and celery, will probably need some quick acting nitrates from time to time, such as nitrate of soda. If leguminous cover crops have been turned under, or heavy applications of well-rotted manure have been made, the quantity of nitrates for forcing plant growth may be largely reduced.

Get the soil abundantly supplied with organic matter, apply phosphate in the form of NATURSOWN, and the cost of fertilization will be reduced to a very small sum.

tion with NATURSOWN is an excellent way to realize full value from this economical ferti-



Young Sugar Cane, Hillsboro County. Grown with "Naturesown"

lizer, for small gardens or intensive farming.

Considering the value of such neglected and often wasted materials as leaves, straw and muck, and the far greater value of manure which is to be had on every farm where horses, swine or cattle are kept, the farmer who considers efficiency and economy can effect a great saving in his fertilizer cost by combining these materials in a properly prepared compost heap.

In addition to the actual fertilizing value of manure, or properly prepared compost, its use improves the texture of the soil, increases the moisture holding capacity, aids the growth of bacteria that render plant food available, and provides organic matter of humus which is the life of the soil.

Note, then, how the United States Department of Agriculture in its Bulletin No. "A"-77, on Cooperative Extension Work, advises farmers to make a compost heap:

HOW TO MAKE A COMPOST HEAP

"Locate the compost heap in an old shed, or build a shed with any kind of cheap material for a roof. Spread on the ground a layer of stable manure 8x10 feet, 6 inches deep. Over this spread 100 pounds of acid phosphate or ground phosphate rock. The phosphate rock answers as well as the acid phosphate and costs about half as much. Continue these alternate layers until the manure is used up or

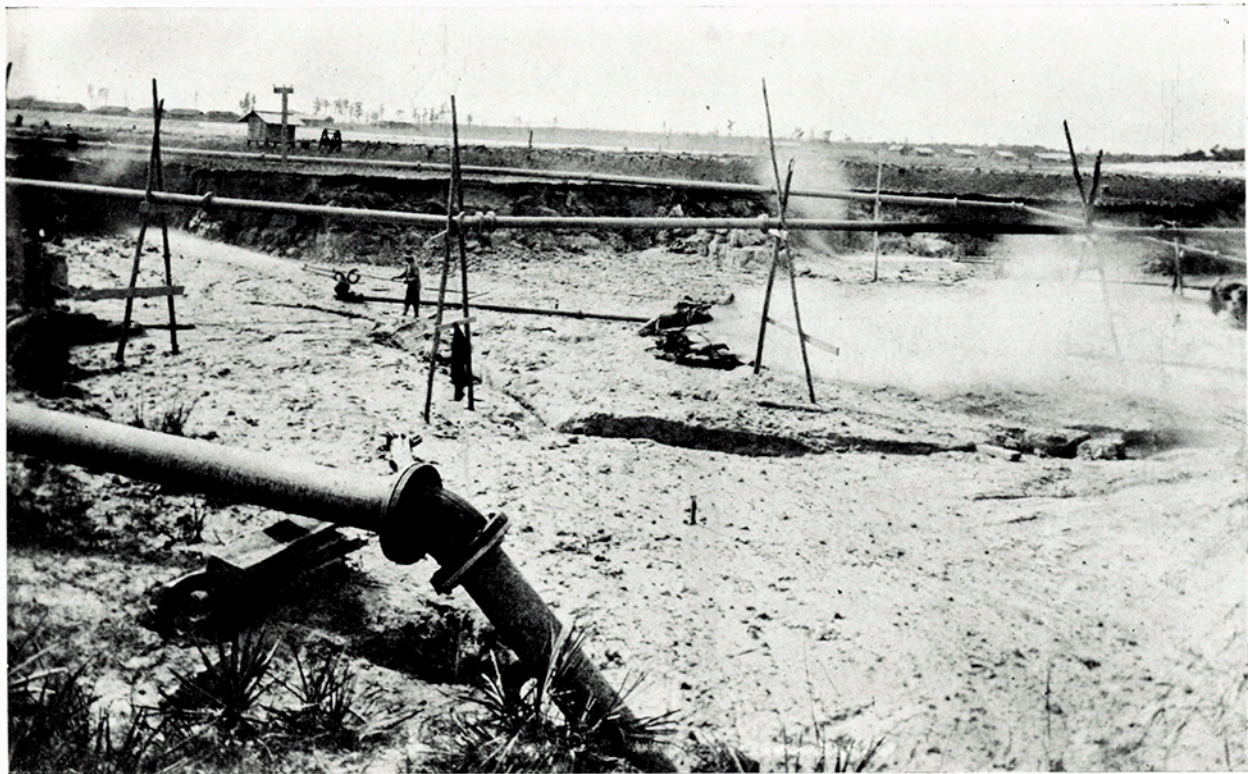
until the pile has become inconveniently high. To these layers might be added straw, leaves mold or other litter, adding 100 pounds of ground phosphate rock to each ton of material used. Be sure to wet all thoroughly. When the compost heap is completed, cover it about four inches deep with loam or forest mold."

Excellent results will come from following this bulletin, but even better will be obtained by using 400 pounds of NATURSOWN to each ton of compost. Additional phosphate increases the ammonia-holding capacity and the phosphorus content of the compost.

In saving manures for composting or for direct spreading in the field, it is a good plan to keep *finely ground phosphate* on hand, and scatter a few pounds in the stall litter or bedding of animals. The phosphate absorbs a large portion of the liquids, prevents liberation of nitrogen, and the availability of the phosphate is greatly assisted.

Manure or compost treated with finely ground phosphate will not become a breeding place for flies; the barn where this treatment is followed, will be found practically free of these pests and disease carriers.

The compost should be kept moist to prevent the loss of nitrogen or ammonia. If a larger percentage of phosphoric acid is required, increase the quantity of finely ground phosphate used.



High-Grade Phosphate Mine of the Lakeland Phosphate Company

When applying two tons to the acre or less, the best results can be obtained by putting the compost in the furrow and bedding out on it.

SOME QUESTIONS AND ANSWERS

So many thousand of interested friends are making so many and such varied inquiries as to what NATURSOWN really is and what it will really do, that we have compiled a list of questions and answers relative to NATURSOWN. You, who are interested in this money saving fertilizer, may find your answer here:

Question: Is the phosphoric acid in NATURSOWN available to the plant?

Answer: Yes. When methods of cultivation are followed as advocated in this booklet (which are the methods taught by the leading experiment stations of the world), the growing plant obtains all the phosphoric acid necessary for its best development from NATURSOWN Pulverized Phosphate. Quick growing crops, such as tomatoes, potatoes, corn, oats, all find an abundance of plant food available in NATURSOWN.

Question: It is generally stated that plant food is not available unless it is water soluble by laboratory test, then how can the phosphoric acid be available and yet not water soluble?

Answer: Because the theory that plant food

Be careful not to bury too deep, especially on clay soils. When using more than two tons to the acre it is better to scatter broadcast.

must be water soluble by laboratory test to be available is an exploded one. Acid treated phosphate, when applied to most soils, becomes fixed or reverts to a form no longer soluble in pure water, but it is not denied that it is available when acted on by the soil. Leading agricultural experts agree that the best and only practical test of availability of any plant food is under actual soil conditions.

Question: Is NATURSOWN a complete fertilizer?

Answer: No; NATURSOWN contains no nitrogen or potash. It is valuable mainly for its high percentage of phosphoric acid. In complete or mixed fertilizers, there is, as a rule, a larger percentage of phosphoric acid than any other ingredient, for which you pay excessive prices. The sulphuric acid treatment practically doubles the cost of phosphate, while the fertilizing value is about one-half.

Question: Since NATURSOWN contains no nitrogen or potash, how am I to make up this deficiency?

Answer: If you require nitrogen or ammoniates, you can, of course, buy them in the



"Naturesown" was used on this garden, and the yields were very heavy

form of nitrate of soda, cottonseed meal, blood or other similar nitrogen-bearing materials. But there are thousands of tons of nitrogen to be had for practically no labor or expense, through the wonderful faculty which leguminous crops, such as beans, peas, clover, beggar-weed, etc., have of extracting it to the soil. The modern farmer makes it a rule to grow such crops from time to time on his land, which he turns under, and thereby secures all the necessary nitrogen for all practical purposes at practically no cost.

Question: Is there sufficient lime in NATURSOWN to sweeten acid soils?

Answer: NATURSOWN contains a small percentage of free lime, but not sufficient to sweeten very acid soils, such as muck, or newly

cleared sour lands. When once sweetened, the small percentage of lime in NATURSOWN will keep your soil neutral. Lime adds no fertilizing elements to the soil, but is a soil conditioner and helps to release the inert plant foods in the soil.

Question: What is humus, so frequently referred to in this booklet?

Answer: Most of the organic matter in soils comes from decaying vegetation and some form of animal matter. When this decaying vegetable or animal matter becomes thoroughly decomposed, it assumes a black, waxy consistency and is called humus. Humus is, in fact, the life of the soil; it influences its water-holding capacity, texture, temperature and color, and, of greater importance, supplies both home and food for soil bacteria.

GOOD VALUE, QUICK SERVICE WITH NATURSOWN

In the foregoing pages we have shown that the economical and efficient method of supplying phosphorus to the soil for promoting immediate plant growth and for permanently enriching the soil is by liberal applications of finely ground, high grade phosphate rock, just as it comes from our mills. Nature's own chemistry makes the phosphoric acid in NATURSOWN available for plant growth as it is needed. Our own statements, based on

accurate knowledge gained through experience and many costly experiments, are supported by reliable testimony from all parts of the country.

Our shipping facilities are such that NATURSOWN can be transported from the plant to any point within or without the State on short notice. From Lakeland there are two lines of railroad to the North, and several lines diverging to Southern, Eastern

and Western points. Ours is one of the most modern plants in the Florida phosphate district. The grade of the phosphate is exceptionally high.

The plant is equipped with the best grinding and pulverizing machinery for the preparation of NATURSOWN that money can buy. The storage bins have a capacity of 10,000 tons, and our facilities for filling orders promptly and accurately are all that could be desired. We have a thoroughly equipped laboratory, and no product of the plant is allowed to go to customers until it has met the most careful tests our chemists can subject it to.

It is our desire to assist the farmer, grower and trucker by supplying that necessary plant

food, phosphorus, or phosphoric acid, and by giving the maximum quantity of the best quality at a minimum cost.

NATURSOWN is put up in bags, carrying the State inspection tag. Be sure of the name, and insist on getting only NATURSOWN. If you have used it, we know that you are a permanent customer. If you have not used it you should begin now, because every day that passes means a well defined loss that NATURSOWN will change to a profit. For prices, terms and freight costs, and additional information, address

THE LAKELAND PHOSPHATE COMPANY
Lakeland, Florida

Picking Strawberries in December from field fertilized with Natursown"



DIRECT TESTIMONY FROM MEN WHO KNOW

The following letters from practical farmers, fruit growers and truckers who have used NATURSOWN are entirely voluntary, and are reproduced with their permission. These men make a business of getting their living from the soil. They have seen the necessity of giving something back to the soil in order that it might give them still more. No doubt, some of them had tried everything that you have tried before they began using NATURSOWN.

Their problems were perhaps exactly like yours. You may know some of these men.

At any rate their experience with NATURSOWN holds something of interest for you. The things they have done with this fertilizer and these methods are possible on your land and we believe you will find in each letter some suggestion of rare value to you. We offer them as they are written to us. These are words of just such men as you and your neighbors.

TESTIMONIAL LETTERS

Citrus Trees Full of Bloom

ARCADIA, FLORIDA, April 7, 1916.

*Lakeland Phosphate Company,
Lakeland, Florida.*

GENTLEMEN—In regard to my experience with your NATURSOWN finely ground phosphate, I have given it a thorough trial on my groves and am more than pleased with results, as my trees have stood the unusual dry weather and are full of bloom; in fact, are looking better than the groves in my neighborhood.

Wishing you much success, I remain,

Yours respectfully, R. F. LEWIS.

Gratifying Results in Citrus Grove

EUSTIS, FLORIDA, April 22, 1916.

Mr. A. D. Wright, Eustis, Fla.

DEAR SIR—During the month of November, 1915, I treated my small grove with an application of about one and one-half tons per acre of raw ground phos-

phate rock. I am highly pleased with the results. The trees put on a fine, healthy appearing growth, the crop of fruit was of the finest quality, hanging until late in the season, with very few drops, and the flavor much superior to that from adjacent groves which did not receive phosphate. The trees have blossomed heavily and there is now every appearance of a heavy crop of fruit. In my opinion there is no question but what the trees did get the plant food contained in the raw ground phosphate, and it is a valuable fertilizer for high pine lands.

Yours truly,

J. A. MEAD.

Best Corn in Sixteen Years

ORLANDO, FLORIDA, June 14, 1916

Messrs. E. L. Winn & Co., Orlando, Florida.

GENTLEMEN—Last December I bought two tons of NATURSOWN and used 1,200 pounds of it on one and

one-half acres of corn with splendid results. I sowed the raw ground phosphate broadcast on the land which had a good crop of legumes and placed it in the ground. I consider my investment worth 100 cents on the dollar in using this kind of fertilizer. I have had corn on this field for sixteen years and this is the best crop I have ever grown.

I also used NATURSOWN on my melon patch. This I mixed with stable manure and put in the melon hills. As long as I can get such results, I shall continue to use the raw ground phosphate.

Yours truly, W. I. SMITH.

Cottage Farm, R. F. D. No. 2, Orlando, Fla.

Banner Crops of Celery and Tomatoes

TAMPA, FLORIDA, April 23, 1916.

Mr. Stephen B. Foster, Jacksonville, Florida.

DEAR SIR—Answering your favor of April 1st, beg to advise that we did use finely ground phosphate furnished by the Lakeland Phosphate Company, and we have found it all that was claimed for it. In fact, we have never had better crops of celery and tomatoes than we have this year. We might say to you that in our opinion this is in every way superior to phosphate treated with acid. We tried out several of the untreated phosphates, but find the product known as NATURSOWN, furnished by the Lakeland Phosphate Company, to be the best, as they have a guaranteed analysis; it runs regular and can be depended upon. Not only were they in position to furnish us with the large quantity we needed, but made prompt shipment of more.

Any information that we can give you along these lines, we will be glad to do so.

Yours very truly,

SCALLY KNIGHT BROKERAGE COMPANY.

(These parties used 1,000 tons on their farm in Manatee county during the past season).

Natursown Doubles Corn Yield

LAKELAND, FLORIDA, June 14, 1916.

Lakeland Phosphate Company, Lakeland, Florida.

GENTLEMEN—In reply to your inquiry regarding the use of NATURSOWN on my corn, will say I planted this year two twenty-acre tracts of practically new land. This land was previously planted to watermelons, etc., and was fertilized at that time with commercial fertilizer. The corn was planted as a catch crop. On one of these fields I used 1,000 pounds of NATURSOWN per acre just to see what showing it would make. My corn is tasseling and the appearance of the field on which I used NATURSOWN is far superior to the other, the growth being even and the color a deep, healthy green. The field on which I did not use NATURSOWN is very uneven and has a sickly, stunted appearance. These fields were planted at the same time, have the same kind of soil, and with the exception of the finely ground phosphate have had the same fertilization. There is no doubt in my mind but what the field on which I used finely ground phosphate is receiving marked benefit from this application, and in all probability will double the yield. Will write you further when I gather the crop.

Yours very truly,

FRED W. POPE.

Splendid Results

VALDOSTA, GEORGIA, July 28, 1916.

I used raw ground phosphate mixed with cottonseed meal on a portion or my crop, and sixteen per cent acid phosphate mixed with cottonseed meal on another portion, and the result is that the raw ground phosphate gave about the same results.

Yours very truly,

J. A. DASHER.

Fine for Strawberries

LAKELAND, FLORIDA, April 15, 1916.

Lakeland Phosphate Company, Lakeland, Florida.

GENTLEMEN—In reply to your request for a statement regarding my experience in the use of finely ground phosphate, will say that I first tried this on one acre of strawberries, using your phosphate at the rate of about 1,000 pounds to the acre. I also used with this four or five hundred pounds of stable manure. My berries were the finest I have ever grown, and though my neighbors have plowed up their berry fields, I am still selling berries in Lakeland and my berries are the finest that are being sold there now. I am very pleased with the results of my first use of your goods and am using it on my tomatoes, beans, cukes, Irish potatoes and corn, and all these crops are looking fine. My corn is three times as large as it was this time last year. I did not use stable manure on the corn as we had used it all up on the other crops, so I just put the ground phosphate broadcast on the land which had a good crop of crab grass, and plowed it all under, and my corn is certainly doing fine. I put about 1,000 pounds to the acre on my corn. My crops and my place can be seen by anyone that wants to see them and they will find things just as I say.

Yours truly,
J. N. DRIGGERS.

Completely Satisfied

MILLTOWN, GEORGIA, July 27, 1916.

Beg to advise that the raw ground phosphate has proven all that was claimed for it. We used it exclusively this season and are completely satisfied with results thus far.

Yours very truly,
J. B. BASKIN & SON.

Makes Good in Cotton Belt

WAYCROSS, GEORGIA, July 28, 1916.

GENTLEMEN—We used NATURSOWN (raw ground phosphate) last spring and our crops are better than we have ever had them before. We mixed it with humus and stable manure. Quite a lot was mixed with the muck hauled from ponds and the results have been more than we anticipated, as we have very little stable manure to mix with it.

We are convinced that it will give quick results when used in connection with cover crop, stable manure, muck or some kind of decaying vegetable matter.

Yours very truly,
GEORGIA FARM, FRUIT & PECAN COMPANY.

Good for Corn and Sweet Potatoes

TAMPA, FLORIDA, April 1, 1916.

Lakeland Phosphate Company, Lakeland, Florida.

Answering your inquiry as to results from use of NATURSOWN, will say that it has proven entirely satisfactory on corn, sugar cane and sweet potatoes and has done everything that you claim for it or that I expected of it. I cannot speak too highly in praise of this product.

Yours very truly,
J. E. ETZLER.

Greatly Increased Cotton Yield

DOUGLAS, GA., July 25, 1916.

TO WHOM IT MAY CONCERN—This is to certify that I used NATURSOWN (raw ground phosphate) on a portion of my crop, principally cotton, in connection with stable manure, and the result is that where I used it the crop is more than twice as good as where I did not use it.

Yours truly,
ELIAS LOTT.

P. S.—As a matter of fact, my cotton is more than four times as good as it is where I did not use anything.

"Will Use Lots of It Next Year"

KINDER LOU, GEORGIA, July 26, 1916.

I used raw ground phosphate alone on peanuts, peas and trees. On corn and cotton I used cottonseed meal and raw ground phosphate mixed, and it gave better results than where I used sixteen per cent acid phosphate and cottonseed meal mixed in the same proportions. The difference in cost is very much in favor of raw ground phosphate. I like it very much and will use lots of it next year if prices are right.

I will be glad to answer any other questions for you and can give you the names of others in this county who used it, if you care to write to them.

Yours truly,

W. S. MCRAE.

Alligator or Avacado Pears

VERO, FLA., May 10, 1916.

Lakeland Phosphate Company, Lakeland, Florida.

GENTLEMEN—Front picture shows one of the two-year-old Alligator pear trees, twenty-five of these are in full bloom. All are a picture of health. Only NATURSOWN raw rock phosphate and tobacco dust were used.

Yours very truly,

WM. STURM.

Natursown Makes Potatoes Grow

ZEPHYRHILLS, FLA., August 7, 1916.

Lakeland Phosphate Company, Lakeland, Florida.

GENTLEMEN—I received my phosphate in good condition. I used some of that first on potatoes. It is showing a nice chance for a good crop. I will probably want a carload soon. I will let you know the results from it.

Yours truly,

LAWRENCE ADKINS.

Fine Results on Grove and Truck

ARCADIA, FLA., April 7, 1916.

Lakeland Phosphate Company, Lakeland, Florida.

GENTLEMEN—I take pleasure in saying that the NATURSOWN I have used this year has given satisfaction, and had we had our usual season the results would have been more evident. I have all my garden truck over your goods. Ask Mr. Jackson how it looks compared to others he has seen. When I can serve you in any way, command me.

Yours truly,

PERRY C. BROWN.

Natursown Good for Georgia Cotton

CITIZENS BANK OF RAY CITY.

RAY CITY, GA., July 26, 1916.

Mr. H. Thomas,

55 Mutual Life Bldg.,

Jacksonville, Fla.

DEAR SIR—Your letter of the 24th received and noted.

With reference to the phosphate shipped us by the Lakeland Phosphate Co., was done at the request of their salesman and we were not the buyers at all, but they shipped through us so it would be more convenient for their customers.

The writer was out on the farm last week of one of the users of some of this phosphate and he was very much pleased with the results of what he had used and we have not heard anyone complain about it yet, though we have not had any talk relative to the phosphate with but this one farmer.

Our opinion is that it is worth the money. We are sorry that we haven't more information to give you on the matter.

Very truly yours,

L. M. MARSHALL, *Cashier.*

"All That You Claim for It"

GARDNER, FLORIDA, Feb. 2, 1916.

Lakeland Phosphate Company, Lakeland, Florida.

GENTLEMEN—Your former goods were O. K. and I am enclosing money order for one-half ton (1,000 lbs.) more of NATURSOWN.

NATURSOWN is all you claim for it and I intend, as I wrote you before, to use as much of it as I'm able, to secure durability in soil improvements in connection with legumes.

With best wishes for your success in giving soil tillers of the Sunshine State what they need, and looking for prompt arrival of NATURSOWN, I am,

Cheerfully,

CHARLES S. GOFF.

Grove and Truck

PUNTA GORDA, FLA., June 28, 1916.

Lakeland Phosphate Company, Lakeland, Florida.

GENTLEMEN—With reference to your NATURSOWN finely ground phosphate, will advise that during the past season I used about thirty-five tons of this product and in my opinion I received material benefits from the use of same and expect to use forty or fifty tons next fall and winter. I used your goods on both grove and truck.

Yours very truly,

A. F. DEWEY.

Potatoes—"The Best Ever"

Lakeland Phosphate Company, Lakeland, Florida.

LOUGHMAN, FLA., July 25, 1916.

GENTLEMEN—This is to inform you that I used your NATURSOWN phosphate in compost with manure and used the compost on my potato crop. I raised the best potatoes I have ever grown. They're smooth, solid and well shaped. I expect to continue to use your phosphate in compost, because I can grow anything I want to that way and it don't cost anything compared to commercial fertilizer, besides the compost makes my land worth more. Your phosphate is the greatest thing out for the Florida farmer.

Yours very truly,

J. E. DEEN.

Corn, Sugar Cane and Sweet Potatoes

TAMPA, FLORIDA, April 1, 1916.

Lakeland Phosphate Company, Lakeland, Florida.

GENTLEMEN—Answering your inquiry as to results from the use of NATURSOWN, will say that it has proven entirely satisfactory both on corn, sugar cane and sweet potatoes and has done everything that you claim for it or that I expected of it. I cannot speak too highly in praise of this product.

Yours very truly,

T. L. WING.

SOIL BACTERIA AND RAW PHOSPHATE

The following table, taken from Bulletin 190 on "Soil Bacteria and Phosphates," published by the Agricultural Experiment Station of the University of Illinois, presents "the actual amount of phosphorus, calcium and nitrogen required by standard crops, and the amounts of phosphorus and calcium which would be made soluble if all the nitrogen required for the crop should be oxidized to nitrate and should act upon pure rock phosphate:

CROP	Nitrogen Req.	PHOSPHORUS Req.	Pos.	CALCIUM Req.	Req.
Corn:					
Grain, 100 bush.					
Stover 3 tons					
Cobs, ½ ton	150 lbs.	23 lbs.	166 lbs.	22 lbs.	321 lbs.
Wheat:					
Grain, 50 bush.					
Straw, 2½ tons	96 lbs.	16 lbs.	107 lbs.	11 lbs.	206 lbs.
Oats:					
Grain, 100 bush.					
Straw, 2½ tons	97 lbs.	16 lbs.	108 lbs.	17 lbs.	208 lbs.
Timothy, 3 tons	76 lbs.	9 lbs.	84 lbs.	20 lbs.	163 lbs.

"The figures show that there is possible of solution from this biochemical process about 7 times as much phosphorus as corn, wheat or oats require, and 9 times as much as timothy requires. Greater differences occur in the calcium figures, there being possible of solution 14 times that required for corn, 18 times that required for wheat, 12 times that required for

oats, and 8 times that required for timothy. It is evident that nitrite bacteria find in pure rock phosphate a highly satisfactory source of phosphorus.

"The question, will the calcium of raw rock phosphate suffice to neutralize the acid produced by nitrite bacteria; and, if so, will phosphorus be made soluble? has been answered in the affirmative from the results of this work."

The above is the conclusion of this bulletin, which was compiled by Cyril G. Hopkins, and Albert L. Whiting, of the Agricultural Experiment Station of the University of Illinois.

In the summary is this statement:

The purpose of the experiment described in this bulletin was to determine whether the farmer supplying nitrogen to his soil in the form of organic matter could depend upon its composition to render soluble the finely ground rock phosphate and to maintain the necessary supply of available phosphorus.

The results seem to indicate conclusively that in the presence of liberal applications of finely ground rock phosphate such solution may be depended upon. This discovery ranks in importance with the inoculation of legumes and with the determination of the amount of atmospheric nitrogen that can be fixed by leguminous crops.

NATURSOWN
FOR PERMANENT SOIL FERTILITY
NATURSOWN

FERTILIZER

A High-Grade Natural Phosphate
Pulverized as Fine as Flour